

## A1 ORGANICS

# Certified Pathogen Free - What Does It Mean?

What does it mean to say that A1's compost is Certified Pathogen Free? It means that A1 Organics has met the standards established by [US EPA 40CFR 503](#) for unrestricted use and distribution. These regulations have specific time/temperature requirements to insure pathogen destruction.

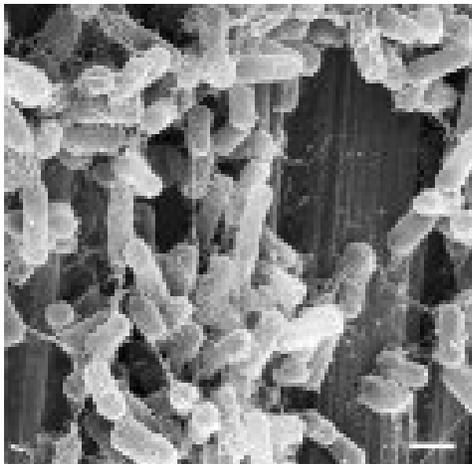
Understandably, there are concerns over the potential health and environmental consequences of pathogens (disease-causing organisms). The issue receives national attention, especially when unpasteurized apple juice is contaminated with the E.coli bacteria.



The most effective method for destroying pathogens is heat and time. When exposed to heat over time, some pathogens die within a few minutes, while others require several hours. The most persistent pathogen known will die in about 15 hours when exposed to a constant temperature of 124°F or more.

A1 Organics maintains its compost windrows at temperatures of 131°F to 150°F for a minimum period of 30 to 60 days and often 150 days. This time/temperature relationship is 50 to 100 times greater than what is required to safely destroy any pathogen.

## E.coli and Raw Manures



In 1996, hundreds of people who drank unpasteurized apple juice got sick and one person died as a result of an E.coli (a pathogen) outbreak. The E.coli contamination was traced back to the orchards that were fertilized with raw manure. Some apples had been picked up off of the ground and processed along those from the trees. As a result, the E.coli organism ended up in the juice. When the juice wasn't pasteurized (time - temperature), the pathogens stayed alive and were passed along to humans.

Each year the news carries stories on E.coli outbreaks that have been traced to fruits and vegetables, especially from organically grown crops. Again, a common link in all of these cases has been the use of raw manure to fertilize a crop.

## Pathogens

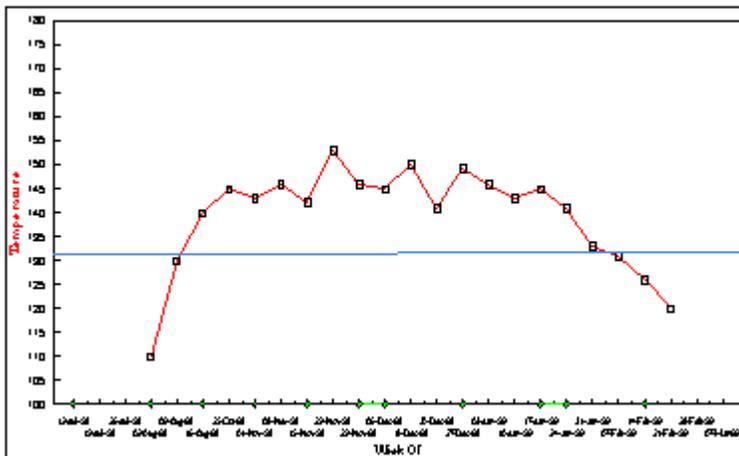
Pathogens are any organism capable of producing a disease or infection. They make us sick, with flu like symptoms. The most common pathogens are E.coli (Escherichiacoli 0157:H7) and/or Salmonella sp. (commonly found in eggs). Pathogens can be found in sewage, municipal solid waste, yard trimmings, food by-products, and animal manures.



There are four common ways to destroy pathogens. All four methods use a time/temperature formula.

- \* Pasteurization Process
- \* Heat Drying
- \* Thermal Processing, including aerobic digestion
- \* Composting

## A1's Certified Compost



A1 compost is produced at facilities that are fully permitted, regulated, and inspected by the [State of Colorado Department of Public Health and Environment](#) and/or the county in which the facility operates. A1's compost is produced in a manner that meets [US EPA 40CFR 503.12](#) standards for pathogen destruction under a controlled, monitored, and documented process. A1 utilizes scheduled windrow turning (aeration), moisture control, and heat to insure a pathogen free product. As required by the EPA, we test these

materials for pathogen destruction at certified laboratories.

Data collection starts from the time a new windrow is built until the product is inventoried for shipment. Data collection includes the number of times the windrow is turned and a complete history of the temperatures. This graph shows temperature history and frequency of turning. In this figure, the windrow was started on July 12th. By August 2, the first temperature recorded of 110°F. This indicates microbial population has starting working. The highest temperature, recorded on November 2, was 153°F. **There were 60 plus days where the temperature was above 131°F (the line across the figure). This is the minimum temperature needed for pathogen destruction.**